

REMARKS

Claims 2, 3, 5, 7, 13, 22, 24, 25, and 34 are pending. Claims 1, 4, 6, 8-12, 14-21, 23 and 26-33 were canceled previously. Claim 25 was amended to address a typographical error. Claim 7 was amended to more particularly point out and distinctly claim the present invention. Claim 34 was amended to provide for consistency with amended claim 7. Support for the elements added to claim 7 can be found at least in original claim 34 and paragraph [00035] of the specification. Accordingly, no new matter has been added.

For at least the reasons set forth below, withdrawal of all outstanding rejections is respectfully requested.

Claim Objection

The typographical error in claim 25 highlighted by the Examiner has been corrected.

Prior Art Rejections

Claims 3, 7, 22 and 25 were rejected under 35 U.S.C. § 102(a) as being anticipated by U.S. Patent No. 6,710,608 (Yoshida *et al.*, hereinafter “Yoshida”).

Claim 34 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Yoshida.

Claims 2, 5 and 24 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Yoshida in view of U.S. Patent No. 6,362,642 (Farnworth).

Claim 13 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Yoshida in view of U.S. Patent No. 6,426,638 (Di Stefano).

Applicants respectfully traverse these rejections.

1. Patentability of independent claim 7 over Yoshida

Claim 7 currently reads as follows (underlining for emphasis only):

A probe module comprising:

- a probe base having a plurality of conductive metal traces;
- a plurality of probe pins attached to the probe base, each of the probe pins comprising an elongated body wherein at least part of the elongated body is bonded to the plurality of conductive metal traces of the probe base;

a circuit interconnect device for connecting the plurality of probe pins to an inspection apparatus;
a compression arm attached to the probe base and configured to engage the plurality of probe pins; and
at least one adjustment element provided on the probe base that adjusts the compression arm against the plurality of probe pins to adjust the contact angle of the probe pins.

The present application discloses structure that allows for adjustment of the contact angle of the probe pins by adjustment of an element that adjusts a compression arm against the probe pins. Specifically, an adjustment element, such as screw 83, facilitates fine adjustment of the contact angle of the probe pins 36 by altering the pressure on compression arm 82 which is engaged with the probe pins 36. Given that there is no structural part of the base 67 above or beneath the probe pins 36 or the probe pin bodies 38 that would prevent the angular movement of the probe pin bodies 38 or the probe pins 36, the contact angle of the probe pins can be adjusted. See Figures 8 and 9 and paragraphs [0034], [0035] and [0051] of the specification.

In the rejection of dependent claim 34 (which contained subject matter similar to the underlined subject matter of amended claim 7), the Examiner states that it would have been obvious to one skilled in the art to adjust the contact angle of the probe pins in light of the adjustment screw 130E that can be manipulated to adjust the compression arm 112E for pressing onto the plurality of contact pins 3aE as disclosed in Figures 16-20 of Yoshida. The Applicants respectfully disagree. As discussed above in reference to the present application, there is no structural impediment in the base 67 either above or beneath the probe pins 36 of the present specification that precludes the adjustment of the contact angle of the probe pins 36. The same cannot be said for the embodiment disclosed in Yoshida cited by the Examiner. Further, Yoshida does not disclose or suggest the manipulation of the contact angle of the probe pins by adjustment of a compression arm via an adjustment element.

In most of the embodiments disclosed in Yoshida, including the embodiment cited by the Examiner, there is typically an upper clamp 111 and a bottom plate 116 that are combined to form the probe device. The compression arm (typically 112) of the upper clamp is adjusted via a screw (typically 130) to apply compression force on the probe pins (typically 3aE) against the bottom plate 116. See, for example, Figs. 21-24, 27, 29, 31, 33, 38, 41-43, 46-48, and 50-52 of Yoshida. Yoshida's structural configuration does not allow for the adjustment of the contact

angle of the probe pins 3aE. To the contrary, increasing the compression of arm 112 via screw 113 can only press the probe pins 3aE against the plate 116, but cannot adjust the probe pin contact angle. One skilled in the art would not recognize that adjustment of the contact angle of the probe pins was possible or obvious via a compression arm and adjustment element, such as an adjustment screw, as disclosed in these embodiments of Yoshida.

In addition, none of the embodiments in Yoshida disclose or suggest the adjustment of the contact angle of the probe pins via a compression arm and adjustment element. To the contrary, Yoshida discloses that when the adjustment of the contact angle of the probe pins is desired, the probe pins (typically 36) should be bent to predetermined angles or positions (S, S1, S2) as required by the application. See at least Figures 38, 58, 59, 71, and 72. Once bent into a predetermined angle or position, these angles or positions are not adjustable without reformation of the probe device. See at least column 28, lines 22-25 and column 36, lines 11-20 of Yoshida. Therefore, one skilled in the art would not recognize from these embodiments of Yoshida that the adjustment of the contact angle of the probe pins via a compression arm and adjustment element was either possible or obvious.

Therefore, Applicants respectfully request that the Examiner reconsider and withdraw the rejection to claim 7.

2. Patentability of the dependent claims over the applied references

The dependent claims are believed patentable over the applied references for at least the reason they are dependent upon an allowable base claim and because they recite additional patentable elements.

3. Patentability of dependent claim 22

Dependent claim 22 is not listed in the recent Office Action Summary as a pending claim. However, claim 22 is pending and the Examiner addressed claim 22 in the detailed action section of the recent Office Action. The same argument made above with regard to the dependent claims of the application also applies to claim 22.

Conclusion

Insofar as the Examiner's rejections were fully addressed, the present application is in condition for allowance. A Notice of Allowability of all pending claims is therefore earnestly solicited.

Respectfully submitted,

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